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PREHISTORIC ILLINOIS.

THE PRIMITIVE FLINT INDUSTRY.

DR. J. F. SNYDER.

True *flint*—silica with very slight admixture of lime and oxyd of iron—is not one of the native minerals of Illinois. But *chert*—a compound of silica with aluminum, magnesia, lime, soda and a trace of iron—occurs quite abundantly in different parts of the State intercalated in stratas of limestone, and also in free nodular masses. Chert varies in composition and texture from the coarser grades of hornstone to an approximation to true flint; and in color from dusky brown, gray, blue and green, singly or blended, to translucent white. The variety of it known as jasper is often in brilliant colors, and sometimes beautifully variegated. For convenience of description when treating of prehistoric Indian implements, archæologists comprehend all those fashioned of silicious stone in the general class of “chipped flints.” As thus designated, flint was indispensable to the aborigines. It was essential to them for obtaining food, for their defensive and aggressive warfare, and for many domestic utilities.

Of that class of Indian relics found in Illinois a large proportion were doubtless made here of indigenous flints; but many also occur that were wrought from exotic material, evidently obtained by the Indians of this locality in distant regions by barter or as the spoils of war—proving the wide intercommunication of the early tribes. Thus, in the country bordering on the Wabash and its tributaries the predominant chipped implements are of dark flinty stone, easily traced to their origin in the chert beds of the same color and composition abounding in the “Highland Rim” that surrounds the silurian basin

of middle Tennessee; having been brought north by the canoe route of primitive emigration and commerce, down the Cumberland river and up the Wabash. In the valley of the Illinois river the material of many—perhaps of the greater number—of its flint artifacts is readily recognized as identical with that of Flint Ridge in Licking county Ohio, from whence they no doubt came. Associated with them here are the peculiar blue arrow and spear points from the upper Missouri; those of milk-white chert common in the Dakotas; rude specimens of Michigan quartzites, and occasional intruders of novaculite, from the environs of Hot Springs in Arkansas. But the most abstruse problem presented in this early aboriginal industry is to explain the (rare and exceptional) presence in Illinois mounds of exquisitely finished implements of *obsidian*, a volcanic glass found in no locality nearer this State than Arizona or Wyoming.

Possibly these fine objects—contrasting so sharply with the local products in that line—were among the *lares et penates* of the first red immigrants from the occident who, wandering to this side of the Mississippi, deposited them, as votive offerings, in their memorial mounds. The extreme scarcity of obsidian here, either fragmentary or in definite forms, precludes the supposition that it was imported in bulk as a raw material, and subsequently chipped into conventional shapes here, as were several varieties of flint from other regions. Cabeza de Vaca relates, in his shipwrecked experience on the rockless shore of Texas, near Galveston, in 1530-'36, that certain Indians, of the tribe that held him in captivity, made periodical expeditions far into the interior of the country for flint to tip their arrow and spear shafts with. Extensive traffic of that kind was conducted by Tennessee Indians with those on the Gulf coast, bartering flint from their hills for marine shells and corals. The Indians of Illinois were not less enterprising. Not finding here the kinds of stone possessing the toughness, and other qualities, to suit their purposes, they procured supplies of the needed article from districts distant

sometimes several thousand miles, bringing it here in pieces of convenient size to carry, or in "roughed out" implements to be afterwards finished at their leisure. On arrival here their stock in trade was *cached* in the ground, for the double object of safekeeping and preserving the natural moisture (water of crystalization) of the stone, that facilitated its cleavage. It may here be remarked that our gun-flint makers, of a century or two ago, discovered that property of the stone and kept it in tanks of water until ready to utilize it. At this late date it not unfrequently happens that the plow uncovers an old *cache* or buried deposit of rudely shaped flints, hidden there long ago by a venturesome trader who forgot their location or fell in battle without revealing their hiding place.

In all parts of the State, excepting in the large prairies, are occasionally seen the remains of the open air workshops where native artisans of the stone age wrought, from the several varieties of flint-like rock at hand, their missive weapons and utensils in daily use. Those remains are now but more or less extensive rubbish heaps of stone flakes and chips, interspersed with broken or incomplete implements and rejects, with bones, mussel shells, charcoal, ashes, and other camp refuse, partially or wholly buried in the soil. They are found usually, but not invariably, near streams, springs, or old village sites. In one of these ancient factories, covering half an acre or more of ground, adjoining a group of large mounds in Brown county, in the vast accumulation of cherty debris, broken pottery, etc., were observed, and collected, fragments of chalcedony, agate, mica, catlinite, and various quartzose rocks, entirely foreign to the geological horizon of central Illinois. For all ordinary purposes, however, the Indians relied upon the supply of cherty flint found here as erratic drift boulders on the surface, or in nodular masses about outcrops of limestone ledges. In but few localities in the State were they compelled to dig in the ground to any extent for this material.

But at one place, the well known "Old Indian Diggings," in southern Illinois, on and near Mill Creek, they carried on mining operations for chert on a very extensive scale, and for a long period of time. The scene of that remarkable industry is in the southern part of Union county and the northeastern corner of Alexander (Plate 1). That district, below the most southern limit of the glacial area of Illinois, is underlaid by subcarboniferous limestone. Upon that basis is red clay and sand to the depth of twelve feet, the disintegrated remains of a former stratum of soft silicious rock, abounding with chert nodules of various forms and dimensions. Over that, to the surface, is fifteen feet of reddish yellow clay. Within a mile of Mill Creek station, on the top and sides of the hills, are seen hundreds of bowl-shaped depressions from twelve to forty feet in diameter closely crowded together, marking ancient pits sunk by the Indians through the surface clay down to, and into, the nodule bearing stratum. When first noticed, many years ago, they were overgrown with large forest trees.* The chert concretions there are in various sizes and forms, generally in flat or rounded ellipses from two inches to two feet in length, and from one to eight inches in width and thickness. Exteriorly the nodules are of a rusty brown color. The interior, of flinty hardness, either brown, blueish gray or white, with exterior cortical layer of less density and lighter color. The vast period of time and immense amount of labor expended in excavating many acres of that tenacious clay to the depth of from ten to twenty-five feet can well be imagined. To economize further time and labor of transportation, the chert obtained was manufactured, or roughed out, in desired forms on the ground. Several of the workshops where this was done extend over from one to five acres of the surface, and one covers fifteen acres. "The whole top of the ridge," says Prof. Cyrus Thomas, "appears to be covered to a depth of from three to six feet with an ac-

* Professor W. A. Phillips, in Proceedings of the American Association for the Advancement of Science. Columbus, Ohio, August, 1899.

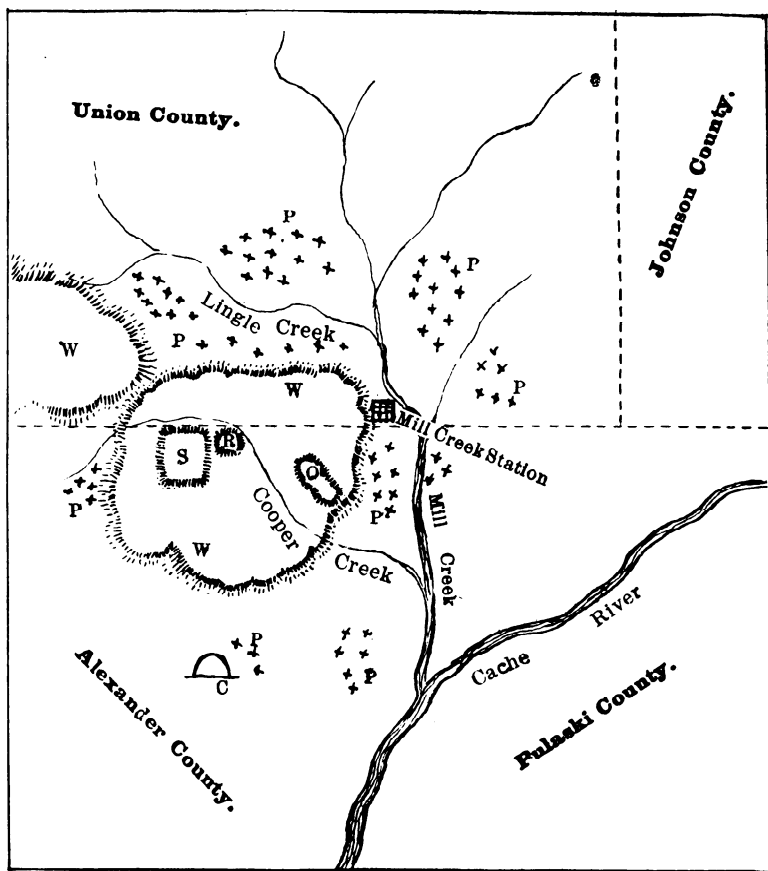


PLATE I.

- P. P. P. Ancient Mining Pits.
- W. W. W. Flint Work Shops.
- S. Square Flat Top Mound.
- R. Round Flat Top Mound.
- O. Oblong Flat Top Mound.
- C. Conical Burial Mound.

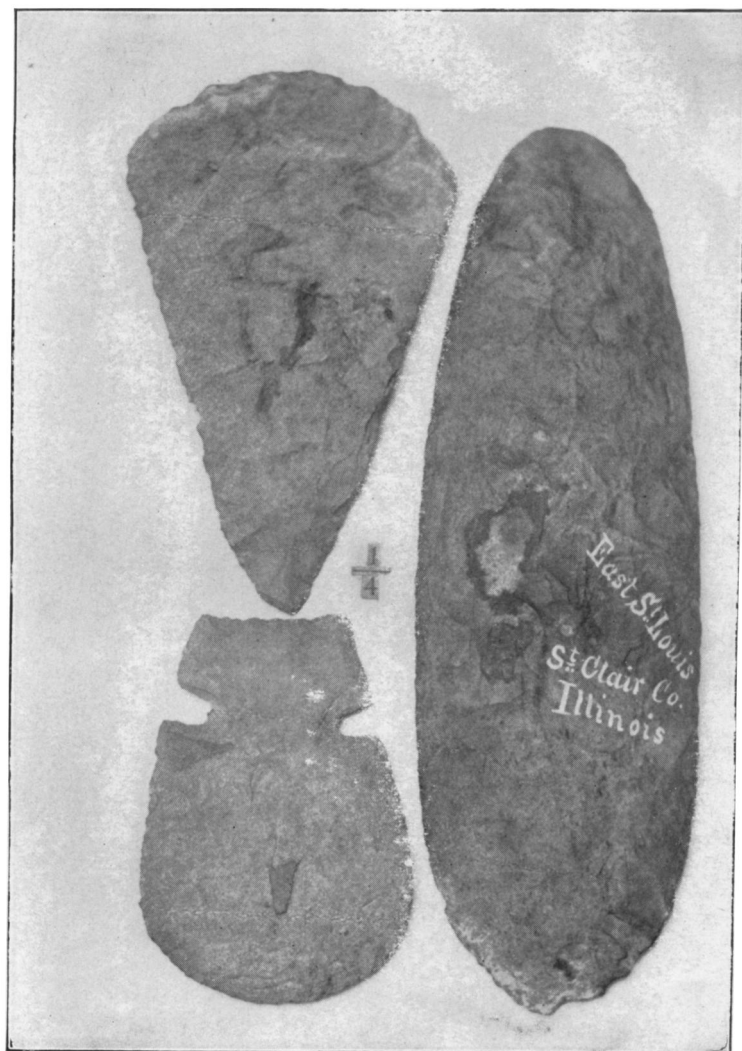


PLATE II.

cumulation of flint chips, broken deer bones, broken pottery, mussel shells, etc. Charcoal, burned limestone, and other evidences of fire are plentifully scattered throughout the mass. The locality would probably be better described as a 'kitchen heap' averaging four or five feet in depth, and covering several acres."* The Mill Creek chert was of especial value to the Indians because of its conchoidal fracture, readily breaking into broad, long and thin flakes peculiarly adapted for large implements, as axes and digging tools for mound building and the cultivation of corn. Spades and hoes of different patterns—Plate 2 representing the most artistic—were the principal products of those pristine workshops, and were in use by all natives of the central valley of the Mississippi in such numbers as to preclude the hypothesis of their distribution by commerce or barter alone. The Mill Creek mines were evidently resorted to periodically by semi-sedentary Indians, from the northern lakes to the Gulf of Mexico, for supplies of those implements. By agreement, or treaty, the district in which they are situated, no doubt, was regarded as neutral territory—as was the Pipestone ledge in Minnesota—within whose limits all tribal enmities were suspended, and all quarry workers were immune from attack or molestation while enroute there or returning to their village.

The age of that ancient local industry, and identity of the primeval miners can only be conjectured. That the Stone Grave Indians of the Cumberland valley participated in it is rendered very probable by the presence there of their typical stone-lined graves. But the fact that many of those graves, and the mounds, S and O., Plate 1, containing, originally, great numbers of them, are situated in and upon large beds of the flint chip refuse, would indicate the arrival of that tribe of Indians there after an enormous amount of mining and implement making had been done by former occupants—perhaps not until comparatively recent times.

* Twelfth Annual Report of U. S. Bureau of Ethnology, p. 148.

The chert nodules, when freshly taken from their clay matrix, were manipulated with some degree of precision, and but little difficulty. Placed perpendicularly on a solid base, a sharp blow on the upper end with a heavy stone as a hammer, usually split off shell-like, slightly concavo-convex flakes, often the full length and breadth of the nodule. With practiced dexterity the flakes were then chipped to the required proportions. When thoroughly dry, chert becomes more brittle, losing much of its shelly, flaking property, and on percussion is apt to break in angular pieces. The old flint workers at Mill Creek met with frequent failures in their vocation, as is seen by the immense number of broken nodules, and spoiled rejects—many of them almost finished—scattered over acres of ground about the ancient pits and workshops.

The largest flint implements of the Illinois Indians were their spades and hoes made of the Mill Creek chert, Plate 2. The smooth, polish of their rounded ends and edges denoted their long continued service in sandy soil—though occasional lots of them, new and unused, have been discovered buried in the ground, evidently the *cached* stock of artisans or traders.* They differ widely from the large chipped flints deposited—in some instances several thousands together—at the base of mounds of the memorial class. In outline the mound flints, disk or leaf-shaped, are invariably fashioned from dark, or gray, hornstone concretions not found *in situ* in this State, and bear no indication of having been used in any manner. While necessarily ascribing them to the flint industry of Illinois aborigines, they were certainly made beyond the limits of this State and brought here for a specific purpose.**

* Professor Chas. Rau, in the Smithsonian Annual Report for 1868, p. 401.

**Proceedings of the American Association for the Advancement of Science, at Madison, Wisconsin, August, 1903, p. 318, *et seq.* A deposit of 1,100 beautiful leaf-shaped implements of variegated jasper was exhumed from the floor of the large Montezuma mound in Pike county, Illinois, in 1905.

Absolutely dependent as were the prehistoric Indians upon edged and pointed stones for subsistence and defense, it is of little marvel that, in the course of ages, they attained great proficiency in working the most refractory rocks. And in that art the Indians of Illinois—judging by the abundant specimens of their handicraft they left us—were unexcelled by any of their race elsewhere. Subsisting by the chase, of nomadic habits and frequently at war, the imperishable portions of their weapons and utensils were broadly distributed over the land, intermingled in places with similar products from other regions. They utilized every variety of stone within their reach that yielded to their artful and patient labor. Of flint they wrought every type of implement, with few exceptions, known to other American Indians. The tiny, delicately barbed and serrated arrow points for small game, the double bevel spear points, the shankless arrow heads for war, every design of knife, chisel, drill, axe, scraper, spade and hoe, of stone, are well represented here. Many objects in stone, to which, in our ignorance of the Indian's method of life, we can assign no use, are also of common occurrence. But they served some useful purpose in their domestic economy, for the noble red man was never so prodigal of labor as to expend the muscular effort required to make them simply for the pleasure of the exertion.

It is probable that all Indian hunters and warriors well understood how to chip flint into arrow and spear points, and at all times kept their war equipment in repair and fully supplied. But there are reasons to believe that in every tribe the flint industry was the special vocation of certain individuals who devoted to it the greater part of their time. To them, we infer, belonged the *caches* of unfinished flints often unearthed in our day.

Collectors of Indian relics find among the stone artifacts they secure a large proportion of rude, clumsy and ill-shaped specimens having some semblance in form to well-known specialized implements, apparently the failures of new beginners in working stone. At first glance

the logical conclusion regarding "botches" or failures of that kind would—in accordance with the theory of progressive human development—assign them a very early origin, as the first attempts of the most primitive savages to adopt the aid of stone in their struggle for existence. It has been claimed, when, by chance, any of them were found in the loess or drift gravels, they assuredly were true palaeoliths, coeval with the glacial agencies of the quaternary period. Half a century, or more, ago the discoveries of M. M. Boucher de Perthes, Lartet, Prestwich, and others, of human remains imbedded in the glacial drift at Aurignac, Abbeville and sundry places in the valley of the Somme, in France, were accepted as indubitably establishing the preglacial existence of man in Europe. Industrious search, since that time, for similar evidences of man's presence in America at that epoch was unrewarded with success until about a dozen years ago, when Dr. C. C. Abbott startled the world of science with his discovery of flints, and other stones artificially shaped, in the drift gravels at Trenton, New Jersey.

A little later, when sinking a well in St. Clair county, in this State, after penetrating the drift clay twelve feet in depth, a rough white flint, represented, in half size, by Fig. 1, was seen on the surface of the exposed till or boulder clay. On examination it disclosed unmistakable hammer marks, showing it to have been rudely chipped to a point and slightly grooved about the middle, as if for the attachment of a handle. Its situation seemed to defy all doubts of its high antiquity. Learned scholars were convinced that it was an irrefragable witness of the existence here in Illinois of man, at any rate, prior to the second ice invasion. It was taken to Washington (by the writer hereof) and submitted to the scrutiny of national savants, some of whom at once classed it with the Trenton flints as a true palaeolith, but others were more reserved in expressing their opinions. Prof. Thomas Wilson, a most estimable gentleman, who was at that time curator of the Smithsonian department of prehistoric anthro-

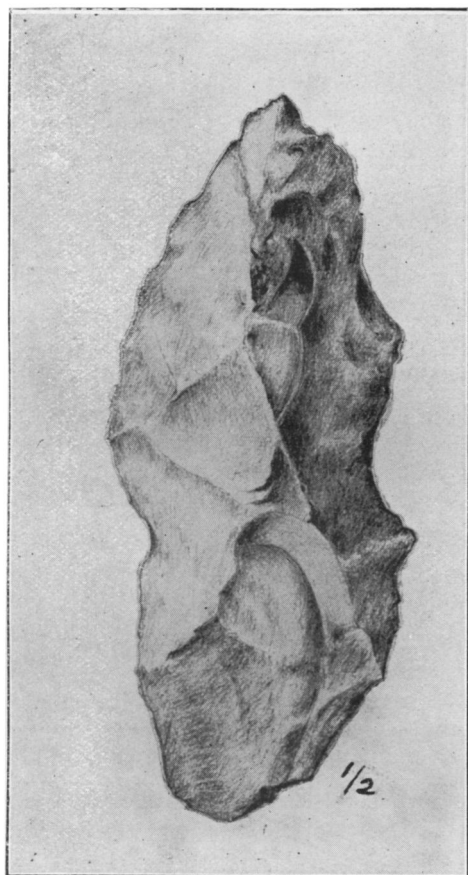


FIG. I.

pology, and who had spent nine years in Europe investigating its archaeology, particularly the human remains from the London clay, and those from the drift deposits of the Solutreen and Somme valley, in France, unhesitatingly pronounced it a genuine interglacial palaeolith. In the next summer, however, extensive excavations near that St. Clair county well threw a new light upon the theories entertained by some of the scientists. It revealed that ages ago a small rivulet had cut its way there down to the blue clay, denuding it for a space of three or four yards in width.

At some time during that stage an Indian camp was pitched there—probably for protection from the cold west wind that the little hollow afforded. Around its fire place, with fragments of bones of deer, rabbits, and birds of several kinds, were found five broken arrow points of flint, a stone pipe, and a small polished green-stone celt. In the passing of time the streamlet had changed its course, and the action of frosts and rains upon the nearby hills had filled up the miniature valley with clay, preserving its contents for inspection and study by a future race. The character of the comparatively recent camp refuse there and glossy little celt, satisfactorily explained that the white flint (Fig. 1.) was simply an emergency implement of that camp, hastily roughed out to a point for immediate use, and after serving that purpose was thrown away. And of all the rude, ill-shaped, half-made flints picked up about old Indians camps and village sites, a large proportion were similarly adapted to meet sudden emergencies, while some are incipient implements to be carefully specialized at another time, and many others were probably the artificer's failures and rejects. There is now little doubt that the Indian on arriving in America was no longer an apprentice in the flint chipping trade, but had already passed to the neolithic, or polished stone, stage of mechanical proficiency.

The Trenton relics attracted the earnest attention of the ablest geologists and archaeologists of the day.

After the most searching investigation and much learned controversy, the conclusion reached by a large majority was, that the gravel deposits there were fluvial and post glacial; consequently, not probably of great age. The belief that man was a contemporary of the great extinct pachyderms in North America before it was covered with ice nearly down to the Ohio river, is unsupported by the deductions of science, and is now entertained by very few.*

There is a popular impression that chipping flint into weapons, tools and other objects, necessary to supply the wants of savage life, was an art known only to prehistoric Indians, and was lost when supplanted by the metal contrivances of the white man. That art of the stone age, it is true, was discarded by many of the North American Indians on getting into commercial relations with Europeans, but by many others was practiced until very modern times, and in remote parts of the country is not yet entirely obsolete. As late as in 1880 some of the Hupa Indians of California used stone-pointed arrows, and were adepts in making them.** It was a very simple art, requiring, with the Indian's native mechanical skill, only continual practice and ordinary dexterity. During the writer's residence in central California, 1850-52, he often saw Root Diggers—the lowest beings, intellectually, in the scale of American humanity—armed with the finest of bows and arrows tipped with points of agate, obsidian and quartz; and frequently saw them make those arrow points. Soon learning that we prized their work, they came to our cabins, generally quite nude, with only a quiver of arrows slung over the shoulders, and in our presence made arrow points of any flaking material at hand, as quartz, feldspar, obsidian, or even pieces of

* In exploring the wonderful *Brae* bog, near Los Angeles, Cal., within the last year, vast quantities of bones of the mastodon, mammoth, gigantic sloth, sabre-tooth tiger, lion, two-toed horse and other members of the Tertiary fauna, were exhumed; but among all the well preserved fossils in that ancient asphaltum lake not a vestige of man or his work has appeared.

**Professor Otis T. Mason, in the Smithsonian Annual Report for 1886, Part 1, p. 226.

junk bottles, which, when done, they bartered to us for food or cast off articles of clothing.

Their process was to select, or break out, a fragment of stone, or other material, approximating in form the object they designed making. Then holding it on edge on a smooth boulder as an anvil, by lightly and repeatedly striking it with a small boulder as a hammer, first on one edge then on the other, it was quickly reduced to the proper proportions. The "ingot" was next placed flat on the palm of the left hand—the hand protected by buckskin, or the quiver flap—when the practical application of the fine art of flint chipping began. With the prong of a deer's horn, or a bone, seven or eight inches long, firm and careful pressure exerted along the edge of the "ingot," from point to its base, split off flakes often extending to its center. Repeating the cautious pressure on both sides of the edges, the embryo arrow head very soon assumed the outline of the ordinary leaf-shaped implement. Then reversing the deer horn, or bone punch, to bring its obtusely pointed upper end to bear, by the same mode of pressure, as before, to each side of the broad base of the stone alternately, the indented notches defining the shank were deftly chipped out, completing as symmetrical and finely finished arrow point as could possibly be made of the material; and the entire process not occupying much more than twenty minutes of time. Other Indians no doubt employed different methods, or modifications of the method here described, to accomplish the same object; but the principle of percussive concussion and pressure was relied upon by all engaged in the flint industry.*

Within recent years the art of flint chipping was fully mastered and made a source of pecuniary profit by villainous white men in this country. By long practice they acquired such proficiency in imitating the work of ancient aborigines as to be able to put upon the market great numbers of counterfeit flint implements, and other objects of stone, so well executed as to successfully de-

* The Antiquarian, Columbus, Ohio, 1897, pp. 231-234.

ceive some of the most experienced archaeologists. To satisfy the demand of both venal and ignorant collectors for "rare and fine things," when the craze for Indian relics was raging most intensely, fifteen or twenty years ago, they produced in exquisitely chipped flint a variety of fanciful and grotesque "relics" that astonished scientists, and suggested revision of their theories regarding the Indian's early cultural status. The miscreants were aided and abetted in their rascality by dishonest curio dealers who bought their spurious goods well assured of finding ready and remunerative sale for them. They conducted that infamous business so extensively and ingeniously as to vitiate many private archaeological collections, as well as those of some public museums. They finally incurred the suppressive force of public opinion and the law; yet there is good reason to suspect that the counterfeiting of Indian relics is still a flourishing trade in certain obscure quarters.

When at the height of its activity, several years ago, a lot of the most suspicious looking specimens in the flint department of prehistoric Indian antiquities of the Smithsonian Institution, was sent to the writer for his expert opinion regarding their genuineness. More than half of them were palpable forgeries; those pronounced genuine are represented by Plate III. A flint relic is not to be considered necessarily fraudulent because it is of abnormal figure. The Indian's esthetic faculty was often as well exhibited in the odd and unusual conformation of his lapidary products, as in their perfect symmetry and accuracy of proportions. His most eccentric designs—as several of those shown in Plate III—are not idly erratic, but each embodies a definite idea conceived in custom, superstition, or utility. The purpose of some is plainly apparent, but that of others will perhaps remain wholly unintelligible. They are mainly totem symbols and talismans. With some exceptions, the archaeologist will recognize them as familiar characteristic examples. The totem images are emblematic of animals—mammals, birds and reptiles; the talismans are not designed to rep-

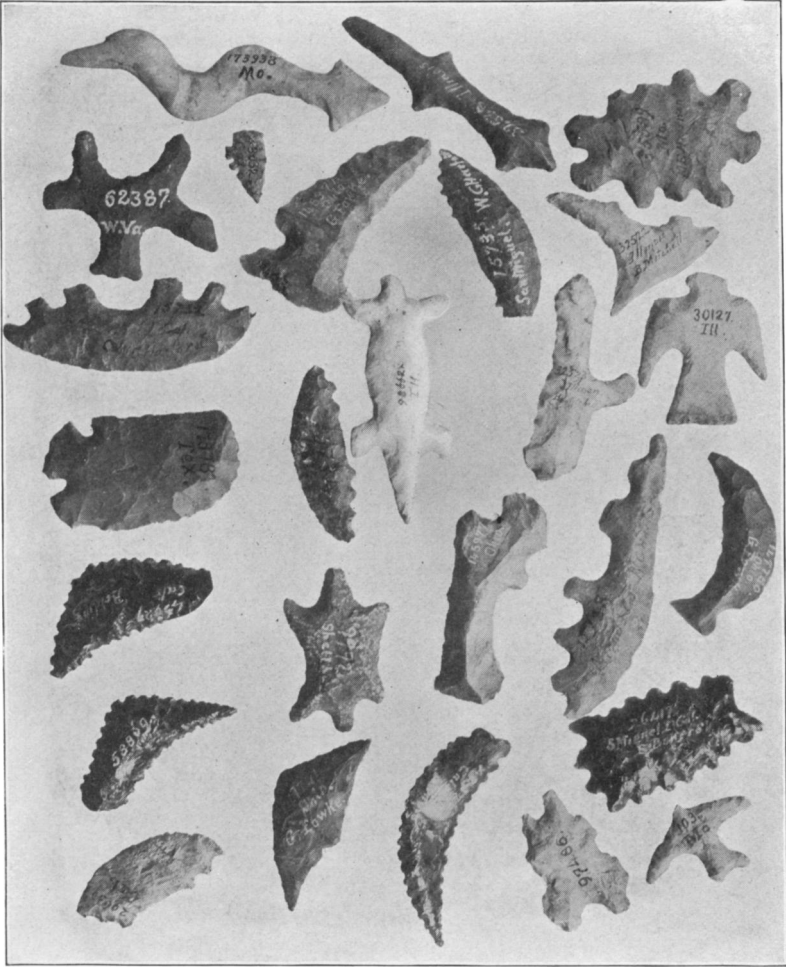


PLATE III.

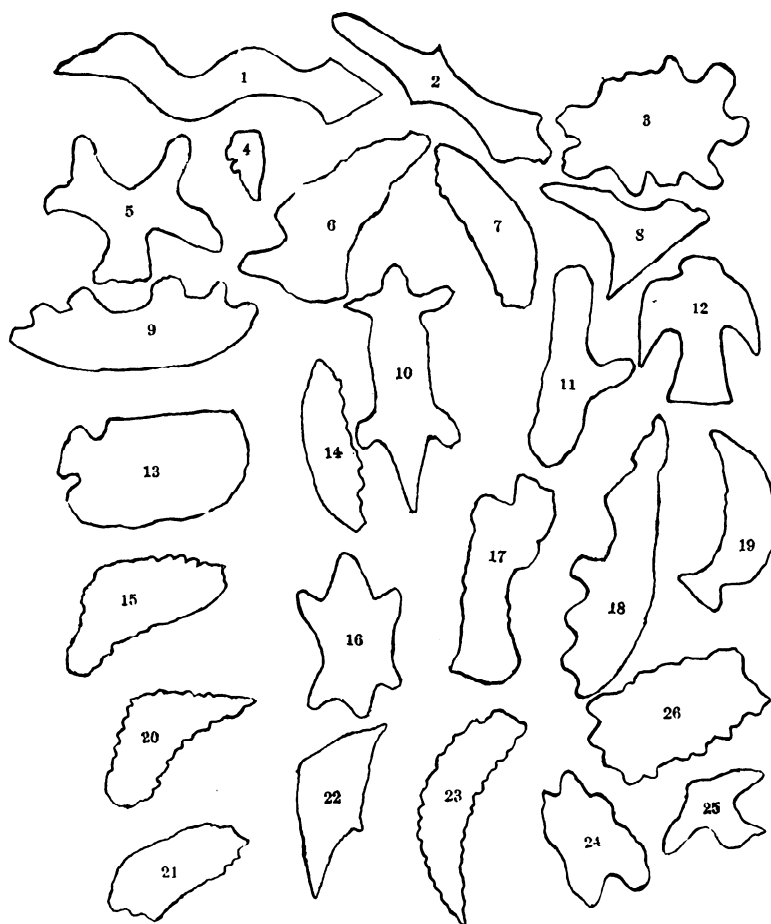


PLATE IV.

KEY TO PLATE III.

Nos. 1, 3, 25, are from Missouri.

Nos. 2, 8, 10, 12, are from Illinois.

Nos. 6, 17, 19, 22, 24, are from Ohio.

Nos. 4, 15, 20, 21, 23, are from California.

Nos. 7, 9, 14, 18, 26, are from San Miguel Island, California.

No. 5 is from West Virginia.

No. 13 is from Texas.

No. 16 is from Maine.

resent anything in nature, but each has some occult significance.

No. 1, of Plate IV, represented in half actual size, is a fine specimen of white opaque flint, well polished and doubtless was worn as an insignia of rank by a Missouri chief of some Snake clan. Nos. 2 and 10, also of white flint, shown in about one-third of real size, are totem figures of the Lizard clan, found in northern Illinois, and probably belonged to some of the builders of the great Lizard mound at Rockford and other mounds of the same type in the northern counties of this State and in Wisconsin. No. 10 is especially well proportioned and true to nature, partially polished, and an elegant example of aboriginal workmanship. No. 12 may be accepted as a totem effigy of the Eagle clan, but has much the appearance of a worn out drill originally modified from a broken spear point. No. 25, however, of yellow jasper, one-third size, was unmistakably the copy of a bird in flight, correct in conception, and well depicted. No. 10, from Maine, of glassy quartz, here reduced one-half in dimension, was evidently chipped by a member of the Turtle tribe; and Nos. 7, 9, 14, 18 and 21 were the best efforts of native artists to represent the animals claiming their communal gentile worship. No. 13, from Texas, of rosin-like jasper, and No. 19, of Ohio Flint Ridge flint, both of actual size, worn in mute appeal to the tutelary spirit for protection from harm in battle or the hunt, were highly prized charms. The nondescript figures, Nos. 3, 5, 8, 11, 17, 20 and 24, were also amulets possessing esoteric talismanic virtues of priceless value.

An interesting instance of the survival of this Indian superstition was seen some years ago. An officer of the U. S. army serving in the northwestern territories, in a battle with Indians in the summer of 1876, secured the war cap, or head dress, worn by one of the hostile savages, and sent the trophy to the writer as a present. Of Indian make, it was a gaudy combination of modern material and barbaric style, constructed of red cloth, elaborately trimmed and ornamented with eagle feathers,

glass beads and ribbons. Its lower part or band fitting around the head was made quite thick by the infolding of several layers of the cloth, and an enclosed rattlesnake skin—as was discovered upon dissection more than a quarter of a century later. Within the folds of the snake skin, deeply imbedded in the band, were four small stone amulets, which in all that period of time had escaped detection. Beautifully finished, they all four were perfect masterpieces of Indian art in the manipulation of stone. The one in front, resting on the forehead, when the cap was worn, was of pellucid chalcedony in form of a bird; and in the part worn over the occiput was a finely chipped obsidian arrow point. At the sides, over each ear, was a highly polished charm, of catlinite, somewhat resembling No. 3 in Plate IV, each having a perforation at one end as if intended for suspension as pendants.

Tho not appertaining to prehistoric Illinois, it may be pardonable in conclusion to notice the puzzling objects from California, numbered 15, 20 and 23 in Plate IV. In the cut they are represented one-fourth of actual size, and too indistinct to give an adequate idea of their real appearance. When received from the Smithsonian Institution they had but recently been brought to public notice, and excited much interest and discussion, as certain learned antiquarians of national reputation had branded them on sight as frauds. To the present time about 300 of them have been dug up from an old Indian burying ground near Stockton, California, and no where else have anything just like them been found. They were associated with decayed human skeletons, and usually near, or in contact with the skull. The material of which they are made is black pyromachic flint, or obsidian. In technique of construction they are unexcelled by any product of the stone age.

But little thicker than common window glass, some of them describe perfect right angles at one corner, with two straight sides, subtended on the third by the arc of a circle. Some are finely serrated on one edge only,

others on all edges. Specimens are found with the appearance of having been twisted at the tapering part, the serrated teeth there being at right angles with the plane of the implement. Several are notched at the base as if for attachment to handles of shafts, and all are skillfully chipped to a needle point (if not mutilated), and to a razor edge at one or all of the borders whether plain or serrated. It is difficult to imagine to what practical purpose such strange, delicate and fragile objects could have been applied. A clergyman of Stockton, who has himself recovered several of them from the old Indian cemetery there, suggested that they were probably surgical instruments for bleeding and scarifying the sick, stating that some California Indians still practice that mode of treatment.* But why so many lancets should be required for one tribe can not be explained—excepting, perhaps, upon the supposition that every application proved fatal, and the instrument was buried with the victim. Another suggestion of their probable purpose is the old subterfuge of our ignorance, that they were “ceremonials”; a phrase to which any fanciful meaning can be attached.

* *American Archaeologist*, Columbus, Ohio, 1898, Vol. II, pp. 319-322.